

# OpenHiGis: A national geographic database for inland waters of Greece based on the INSPIRE Directive Hydrology Theme

Ivo Papageorgaki, Antonis Koukouvinos, and Nikos Mamassis

National Technical University of Athens, Department of Water Resources & Environmental Engineering, Athens, Greece

[ino@central.ntua.gr](mailto:ino@central.ntua.gr)

## OpenHi.net in the context of HIMIOFoTS

**HIMIOFoTS** -Hellenic Integrated Marine Inland water Observing, Forecasting and offshore Technology System- is a national greek infrastructure for marine and inland waters (<https://www.himiofots.gr>).

**OpenHi.net** -Open Hydrosystem Information Network- is an information infrastructure for the collection, management and dissemination of hydrologic information related to inland waters in Greece (<https://openhi.net/>).

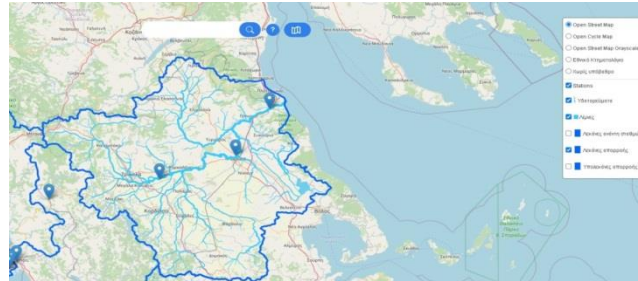
OpenHi.net is mainly oriented to collect and manage river and lake stage data.

## Input data

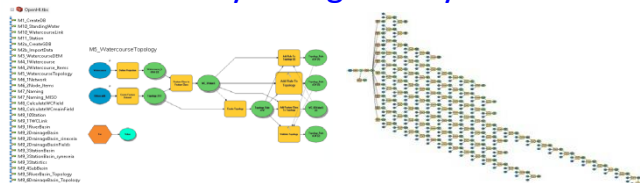
- the European Digital Elevation Model (Copernicus, EU-DEM version 1.1), with spatial resolution of 25 m, is selected for extracting hypsometric information an upslope contribution area threshold equal to 10 km<sup>2</sup> (proposed by the EU 2000/60/EC Directive).
- hydrographic network, lakes and reservoirs from the implementation of EU 2000/60/EC Directive,
- hydrographic network from the implementation of EU 2007/60/EC Directive
- OpenStreetMap hydrographic network and
- hydrographic networks from various scanned maps at scales around 1:50000

## OpenHiGis: The GIS component of OpenHi.net

The OpenHiGis is the GIS component of the OpenHi.net with main goal to Collect, query, analyze and offer data relevant to hydrologic-geographic information.



## Models for hydrologic analysis



Several models are designed and created to run the geographical processes and perform attribute calculations.

## Geographic Database

Geographic data are essential to link river flow data to the upstream basin's hydrologic characteristics.

The geographic database design and implementation are based on the Data Specification on Hydrography, Technical Guidelines specified by the Directive 2007/2/EC (INSPIRE Directive).



Source: <https://inspire.ec.europa.eu/document/hp/hy>

## OpenHiGis Data and Services

**Watercourses:** segment's length, segment's slope, geographical name and stream order.

**Lakes and reservoirs:** area, elevation and geographical name.

**Basins (river basins, drainage basins, basins upstream metering stations):** area, mean elevation, mean slope, basin order, main watercourse length and slope, mean CN.

**Web Map Services (WMS) and Web Feature Services (WFS),** are provided to access, query and download the geographic data (<https://system.openhi.net/cgi-bin/mapserv?map=/opt/enhydri-openhi/enhydri-openhigis/mapserver/openhigis.map>).

**A geodata search capability** is also provided, to find watercourses and lakes through their name and zoom to their boundary.